

GR 99 P 1477

1/pst/s

Description

Method and device for electronically processing
purchasing and sales transactions

10 The invention relates to a method and a device for electronically processing purchasing and sales transactions, which is referred to as electronic commerce, using public communication networks, in particular the Internet, as claimed in the preamble of patent claims 1 and 8.

15 The practice of using the Internet, which is accessible throughout the world, as a comprehensive information network for also ordering or making use of products or services which are made available on it is known.

20 The processing of the actual payment transaction after the order, i.e. after the initiation of the payment procedure, is problematic.

25 Singleton, Cash on the Wirehead, BYTE, page 71, volume 20, No. 6, dated June 1995, discloses a plurality of payment processing methods which are all based on a credit card system and in which various methods are applied for the encrypted transmission of data.

30 It has also already been proposed to additionally secure the authorization of a payment by making a supplementary confirmation by telephone necessary.

35 US 5,794,221 discloses a payment method using the Internet. In said publication, firstly an agreement is made between an Internet provider and the customer and then a corresponding provision is specified between the provider and the seller or service provider. The provider declares in this agreement that he will invoice the customer and

accept responsibility for the settlement of payments with the seller or service provider. The provider himself provides network access for the customer. The transaction information between the seller and customer is supplied simultaneously to the provider, which then performs the corresponding activities such as invoicing and passing on the received payment. The provider is paid for the use of the provider's services.

10 In the previously known solution it became apparent that it was an advantage if it was not necessary for the customer to have to communicate his account number or similar personal data to the seller, thus preventing an undesired temporary presence of this data set on the Internet which is virtually impossible to control.

However, it has become evident that in a method according to US 5,794,221, disadvantages occur in that the provider has to intervene actively into the proceedings relating to the invoicing and settlement of payment. Furthermore, it is necessary for the customer to be identified with respect to the provider, during which process it is not possible to prevent third parties being able to read and to make fraudulent use of this sensitive data about the provider.

In view of the above, the object of the invention is to disclose a method and a device for electronically processing purchasing and sales transactions, which is referred to as electronic commerce, using public communications networks, in particular the Internet, the intention being to increase security when accessing a network and making use of services via the network without having to impose security-related functions on the network provider.

The object is achieved according to the invention with a method as defined according to patent claim 1, and

with a device for carrying out the method according to the features of patent claim 8.

The basic idea of the invention consists accordingly in
5 ordering goods and/or services by means of the Internet
starting from a terminal which is capable of
communication and has a display or monitor, in
particular a personal computer, via an access node, and
electronically paying for these goods and/or services,
10 the terminal which is capable of communication
processing the order data transfer via a switching
office.

After confirmation of the order, the access to the
15 Internet starting from the switching office is at least
briefly interrupted and a menu-prompted billing access
to the switching office of the telecommunications
network operator is set and/or set up. With the menu-
prompted billing procedure, it is then possible to
20 register, with respect to billing, the order within the
respective telephone account file relating to the
terminal, and later settle payment by means of the
customary processing of the services for the use of the
telecommunications network.

25 It is a defining feature that before the order data or
billing data is registered in the telephone account
file, a PIN (Personal Identification Number) input
together with checking, i.e. authenticity check, is
30 carried out.

As a result of the at least brief disabling of the
access between the Internet and the switching office,
unauthorized access for a third party which has
35 monitored the ordering process can be prevented. Of
course, it is also possible to allow the link to exist
online and block external access only within the
framework which is referred to as a firewall function.

The order data and billing data are then stored, for example, in a separate memory area of the telephone account file, it then being possible to register supplementary data such as information on the date and/or the specific type of goods or service.

The order data and billing data can be stored in coded form. It is also conceivable to provide for the data to be output on a customary telephone bill in encrypted form, for example by reference to product or services codes.

Confirmation protocols, which are transferred to the service provider via the Internet in a fashion known per se are created in an automated fashion from the registered and stored order data and billing data. The confirmation protocols do not, however, contain any security-related information, for example the PIN, a credit card account number or the like.

A data link is established to the telephone data-registering computer, which is generally located in the switching office, is established in the respective switching office after a menu item has been called and authenticated by means of the personal computer, it being possible also to activate the menu during the online state of the personal computer and access the Internet so that the user is capable, even when accessing a homepage of a service provider, to activate a menu bar and/or open the appropriate menu in order then, if desired, to bring about the payment processing, during which care is automatically taken to ensure that the Internet access is interrupted or the firewall protection measure is activated at the relevant moment.

In order to increase security, the order data is firstly loaded onto the terminal, namely the personal computer, via the Internet, and the order is registered
5 at the service provider end. Then, in a separate link, the

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set of billing data associated with the order is transmitted from the terminal of the memory to the switching office and registered there in a debit file after authenticity checking. The registration of the
5 accounts receivable is then transferred to the service provider together with an identifier as a confirmation.

At the device end, a terminal which is capable of communication and has a display (personal computer) is
10 provided for carrying out the method, said terminal being connected to a switching office via the telephone network. The switching office sets up access to an Internet access computer (provider) via an appropriate data line.

15 The switching office contains an internode module, said internode module converting incoming telephone data when data is transferred between the Internet access computer and the terminal into a format which is
20 suitable for display on or storage in the personal computer or terminal, but also transforming data records derived from the Internet data transfer into a switching-office format. The internode module creates, as it were, a symbiosis between telephone traffic and
25 digital data transfer.

The invention will be explained in more detail by means of an exemplary embodiment and a figure.

30 The figure shows here a basic view of the access to the Internet starting from a personal computer.

The terminal, in particular a PC 1, is connected to the public telephone network via a suitable modem or an
35 interface. In the relevant supply area, at least one switching office 3 is provided which both sets up call-number-selected links and registers call times for later billing.

A link is established via the switching office 3 to an Internet access computer 4 which is operated by what is referred to as a provider.

- 5 The Internet access provider 4 then permits access to the Internet which is illustrated symbolically by the reference symbol 5.

10 In the switching office there is an internode module 6 which makes it possible for services of conventional telephone systems to be provided with the possibilities of Internet-enabled personal computers. The internode makes it possible for network operators and users to use their existing infrastructure such as leads or
15 switching systems in a systematic fashion for the World Wide Web.

In particular, in the exemplary embodiment, the order data transfer is processed via the switching office
20 when Internet services are made use of. Such use can be, for example, the ordering of goods or services.

After confirmation of the order, the access from the switching office 3 via the access computer 4, or the
25 access to the Internet, is briefly interrupted or disabled for incoming data in order to optimize security. In the personal computer 1, a menu-prompted billing access to the switching office 3 is then established and/or set up in order then to register,
30 with respect to billing, the order within a corresponding terminal-related telephone account file or to process payment by means of the customary processing of the services for the use of the telecommunications networks, for example the call data
35 registration.

Of course, for reasons of security, it is also expedient here to carry out authenticity checking of

[illegible]

for later verification purposes, the order data and billing data should be stored in a separate memory area of the telephone account file in the switching office or in a computer located there.

5

The user who has made use of the Internet service via the personal computer 1, then receives, for example with his monthly telephone bill, a request to pay for the goods ordered or services provided.

10

In the method described, the possibility of personal data such as credit card numbers, account information or the like being conducted over the Internet is ruled out. The particular problem with the Internet is that data and information are held and buffered for a relatively long time on various node computers, and also at the providers, and that as a result of the channeling of a multiplicity of information there is always the risk of third parties interrogating data in a selected fashion and making fraudulent use of it.

20

The order data and billing data which are stored in the switching office 3 or a computer located there are then used for automatically creating a confirmation protocol which is communicated to the service provider via the Internet. This communication can take place directly after the order but also at times of little traffic so that only low supplementary costs are incurred for the operator of the public telephone network 2.

30

In a further exemplary embodiment, a menu item or a menu is activated by the personal computer 1 after the call and authentication confirmation, and a link is established to the switching office, i.e. a data link to the telephone data-registering computer. Of course, the menu can also be activated during the online state of the personal computer and instantaneous access to the Internet,

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the transmission of order data with the consequent production of billing data being however, not performed until after the Internet link has been disconnected.

5 To do this, the order data can firstly be loaded onto
the personal computer 1 over the Internet, and the
order registered at the service provider end. The
billing data associated with the order is then
transmitted, with a separate link, from the personal
10 computer 1 to the switching office 3 and registered in
a debit file after further authenticity checking. The
confirmation of the accounts receivable registration
with the service provider by means of an identifier is
also carried out separately.

15 The switching-office-end operator, for example the
telephone company, performs the settlement of the
payment to the service provider or supplier after
receipt of payment has been indicated.

20 The present solution provides the advantage that
security-related personal data no longer has to be
transferred over the public Internet, providing
significant advantages in terms of security during
25 payment transactions and the trust of users and
customers in the payment system.